

- **Phoenix AMA AWS map update**
- **Review of AMWUA proposal**
- **“SEAs”**

**ADWR Enhanced Aquifer Management
Stakeholder Meeting #4
January 22, 2014**

Phoenix AMA Re-Designation Maps – Scenarios 1&4

**ADWR Enhanced Aquifer Management
Stakeholder Meeting #4
January 22, 2014**

Scenario 1

Pumping:

- Applicants Submitted Pumping Volumes
- Current AWS Approved Demands
- SRP Pumping – Submitted Projected Pumping and Recovery

Recharge:

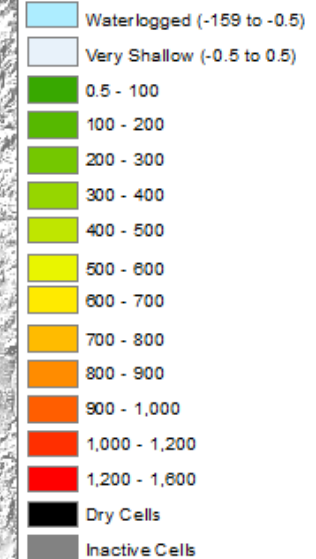
- Applicants Submitted Recharge Volumes
- Projected CAGR

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108

Legend

Year 2010

Depth To Water



Scenario 1 - Run 6

Description:

Designated Providers demands as provided
SRP pumping = 251,325 af/yr

Pumping: Moved to Layer 3 for years 2081 - 2108
AWS pumping moved to near cells.

Pumping Not Simulated: Total = 12,313,429 af (2008 - 2108)

Total AWS pumping not simulated = unknown at this time
For 2108 = 70,808 af/yr

2010 Scenario 1 - Designation Pumping as Provided - DTW Layer 3

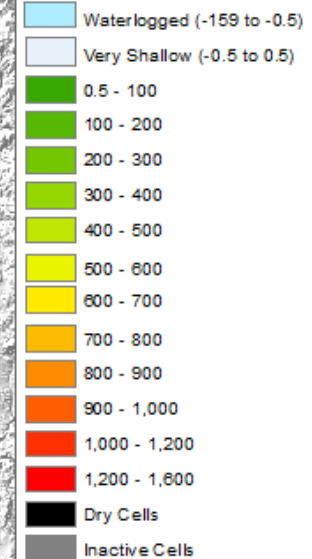
January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108

Legend

Year 2025

Depth To Water



Scenario 1 - Run 6

Description:

Designated Providers demands as provided
SRP pumping = 251,325 af/yr

Pumping: Moved to Layer 3 for years 2081 - 2108
AWS pumping moved to near cells.

Pumping Not Simulated: Total = 12,313,429 af (2008 - 2108)

Total AWS pumping not simulated = unknown at this time
For 2108 = 70,808 af/yr

2025 Scenario 1 - Designation Pumping as Provided - DTW Layer 3

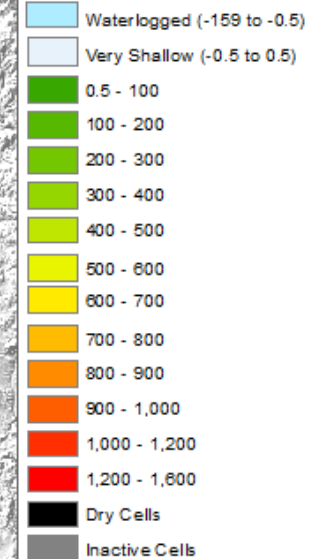
January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108

Legend

Year 2030

Depth To Water



Scenario 1 - Run 6

Description:

Designated Providers demands as provided
SRP pumping = 251,325 af/yr

Pumping: Moved to Layer 3 for years 2081 - 2108
AWS pumping moved to near cells.

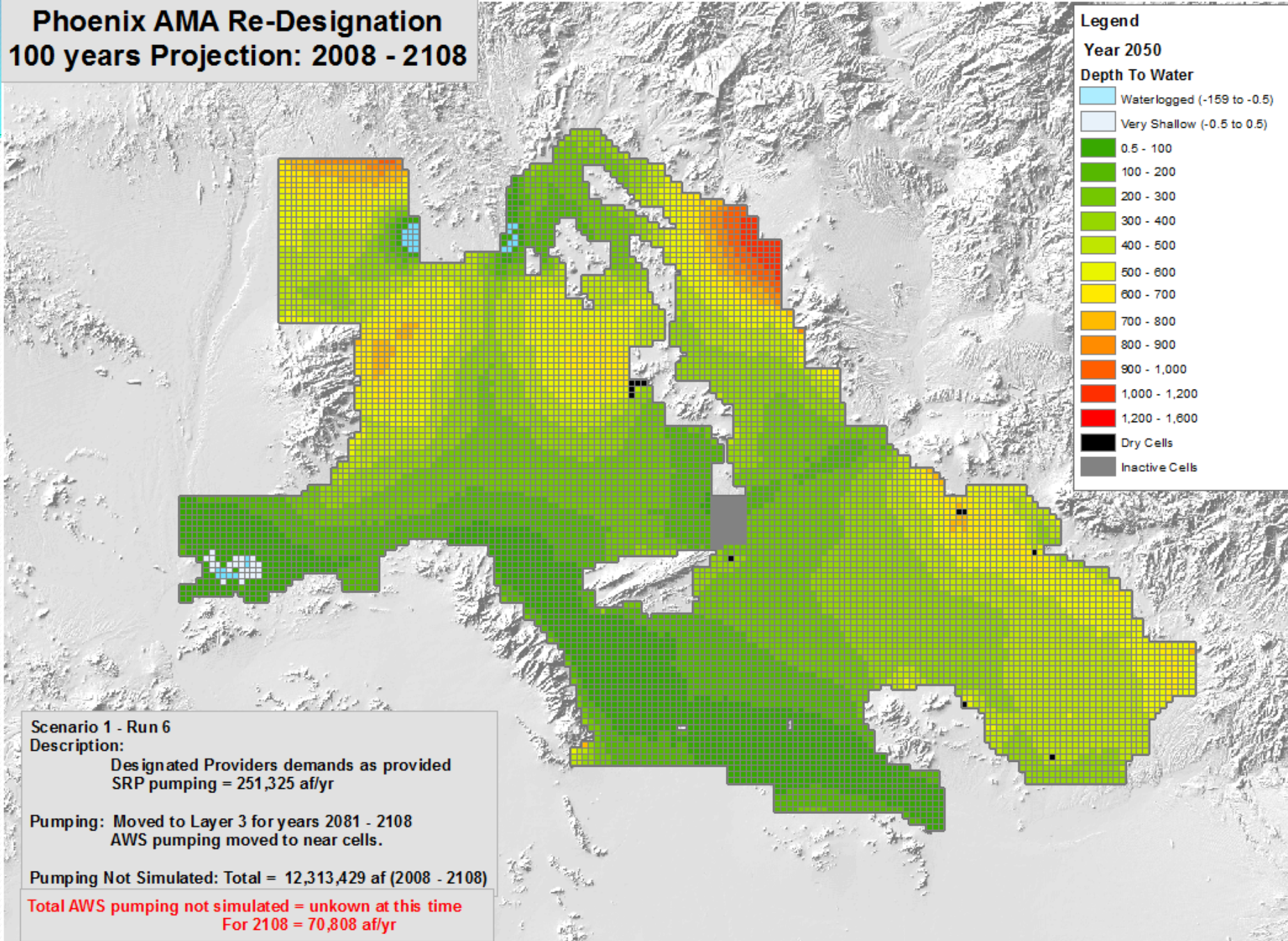
Pumping Not Simulated: Total = 12,313,429 af (2008 - 2108)

Total AWS pumping not simulated = unknown at this time
For 2108 = 70,808 af/yr

2030 Scenario 1 - Designation Pumping as Provided - DTW Layer 3

January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108



2050 Scenario 1 - Designation Pumping as Provided - DTW Layer 3

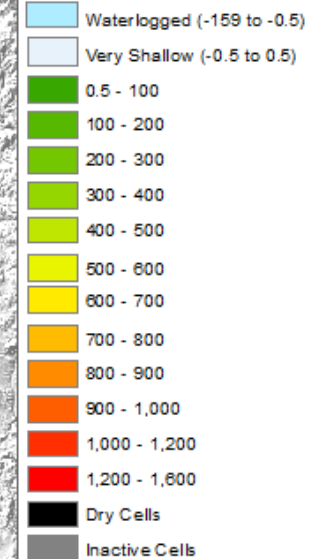
January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108

Legend

Year 2070

Depth To Water



Scenario 1 - Run 6

Description:

Designated Providers demands as provided
SRP pumping = 251,325 af/yr

Pumping: Moved to Layer 3 for years 2081 - 2108
AWS pumping moved to near cells.

Pumping Not Simulated: Total = 12,313,429 af (2008 - 2108)

Total AWS pumping not simulated = unknown at this time
For 2108 = 70,808 af/yr

2070 Scenario 1 - Designation Pumping as Provided - DTW Layer 3

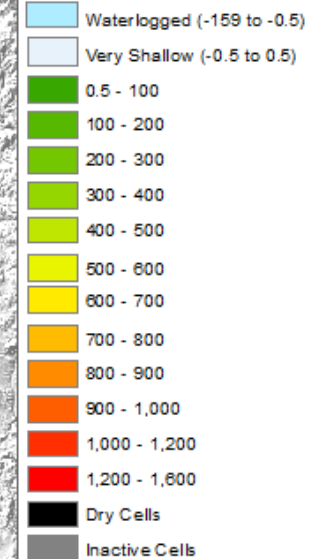
January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108

Legend

Year 2090

Depth To Water



Scenario 1 - Run 6

Description:

Designated Providers demands as provided
SRP pumping = 251,325 af/yr

Pumping: Moved to Layer 3 for years 2081 - 2108
AWS pumping moved to near cells.

Pumping Not Simulated: Total = 12,313,429 af (2008 - 2108)

Total AWS pumping not simulated = unknown at this time
For 2108 = 70,808 af/yr

2090 Scenario 1 - Designation Pumping as Provided - DTW Layer 3

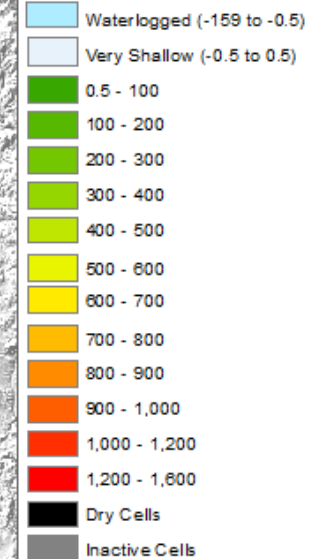
January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108

Legend

Year 2108

Depth To Water



Scenario 1 - Run 6

Description:

Designated Providers demands as provided
SRP pumping = 251,325 af/yr

Pumping: Moved to Layer 3 for years 2081 - 2108
AWS pumping moved to near cells.

Pumping Not Simulated: Total = 12,313,429 af (2008 - 2108)

Total AWS pumping not simulated = unknown at this time
For 2108 = 70,808 af/yr

2108 Scenario 1 - Designation Pumping as Provided - DTW Layer 3

January 2014

Scenario 4

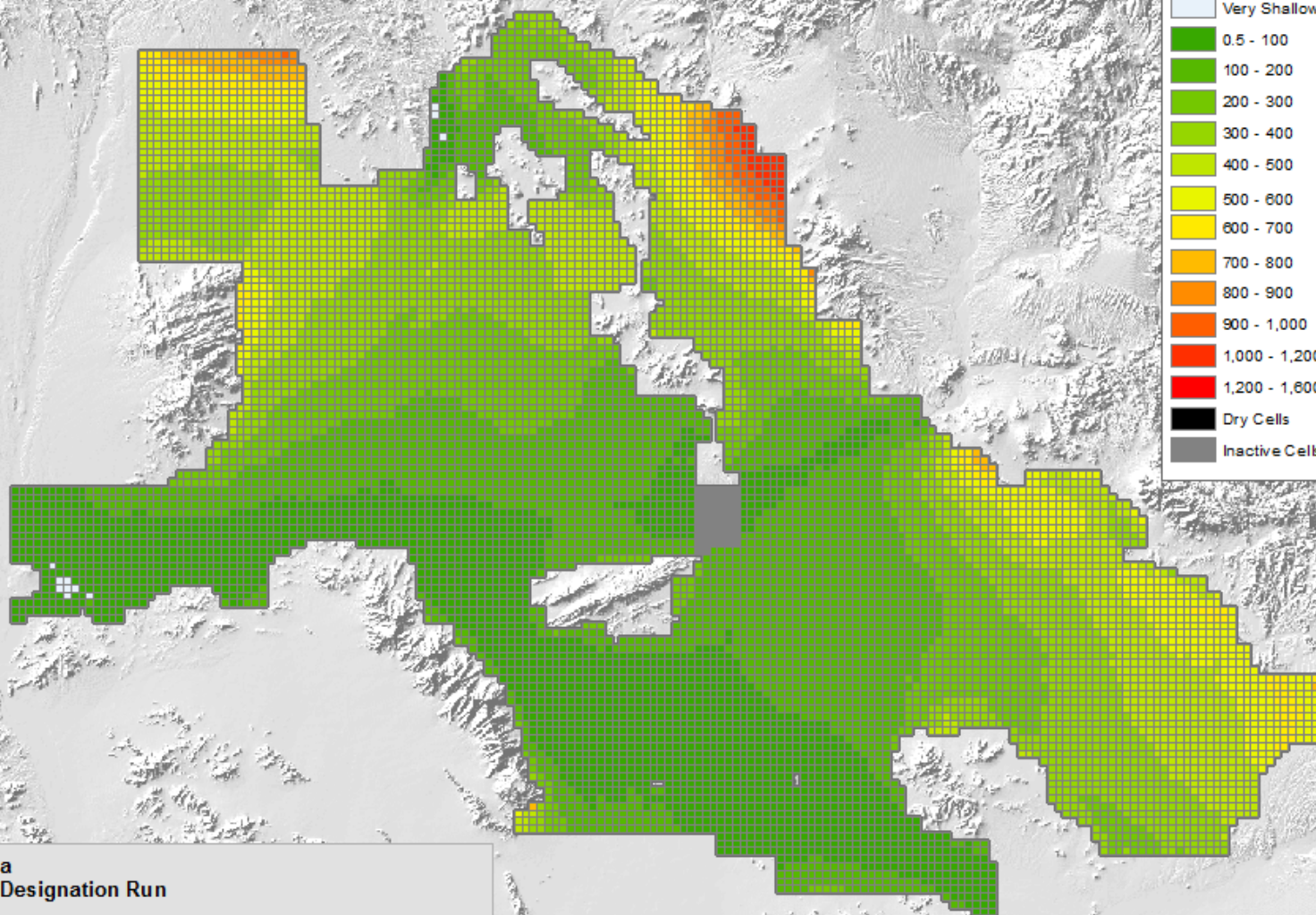
Pumping:

- Additional recovery of LTSC within “Safe Harbor” of USFs

Recharge:

- Additional recovery of LTSC within “Safe Harbor” of USFs
- Applicants recharge at facilities with associated recovery wells
- CAGRD recharge moved from Hassayampa to Superstition Mountain USF in ESRV

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108



Scenario 4 - Run 3a

Description: Final Designation Run

Pumping: Moved to Layer 3 for years 2008 - 2108

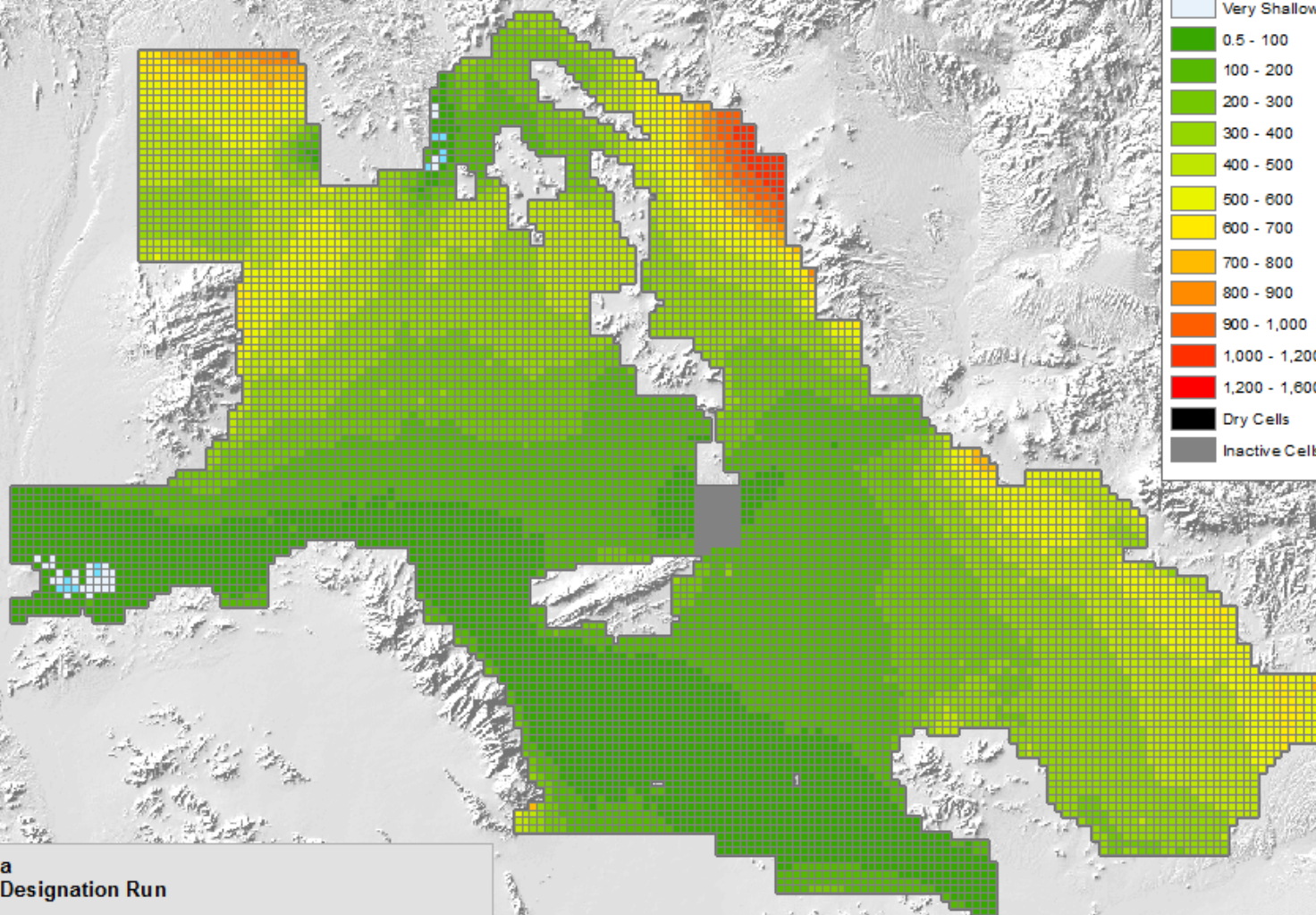
All AWS pumping in dry cell or below 1,000 ft bls moved

Pumping Not Simulated: Total= 4,287,989 af (2008-2108)

2010 Scenario 4 - Recovery of LTSC near USFs - DTW Layer 3

January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108



Scenario 4 - Run 3a

Description: Final Designation Run

Pumping: Moved to Layer 3 for years 2008 - 2108

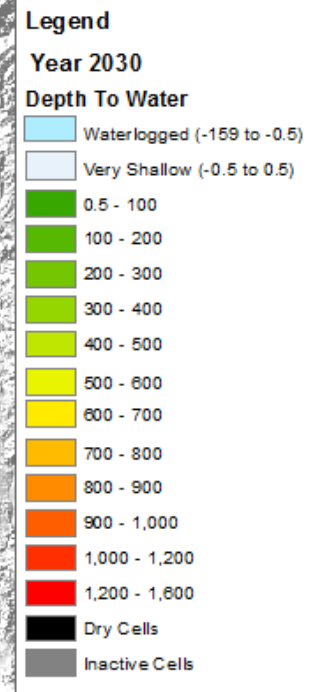
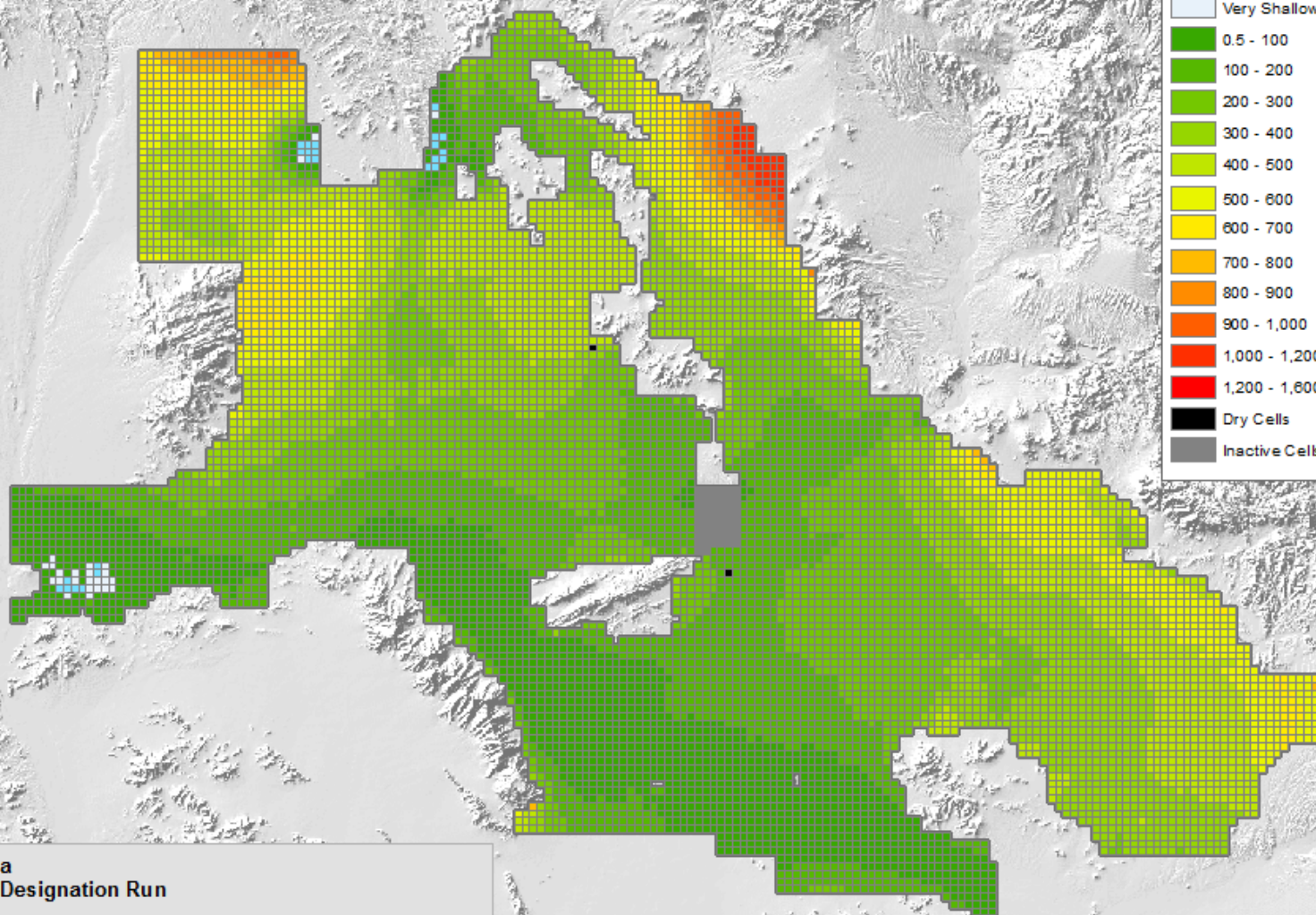
All AWS pumping in dry cell or below 1,000 ft bls moved

Pumping Not Simulated: Total= 4,287,989 af (2008-2108)

2025 Scenario 4 - Recovery of LTSC near USFs - DTW Layer 3

January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108



Scenario 4 - Run 3a

Description: Final Designation Run

Pumping: Moved to Layer 3 for years 2008 - 2108

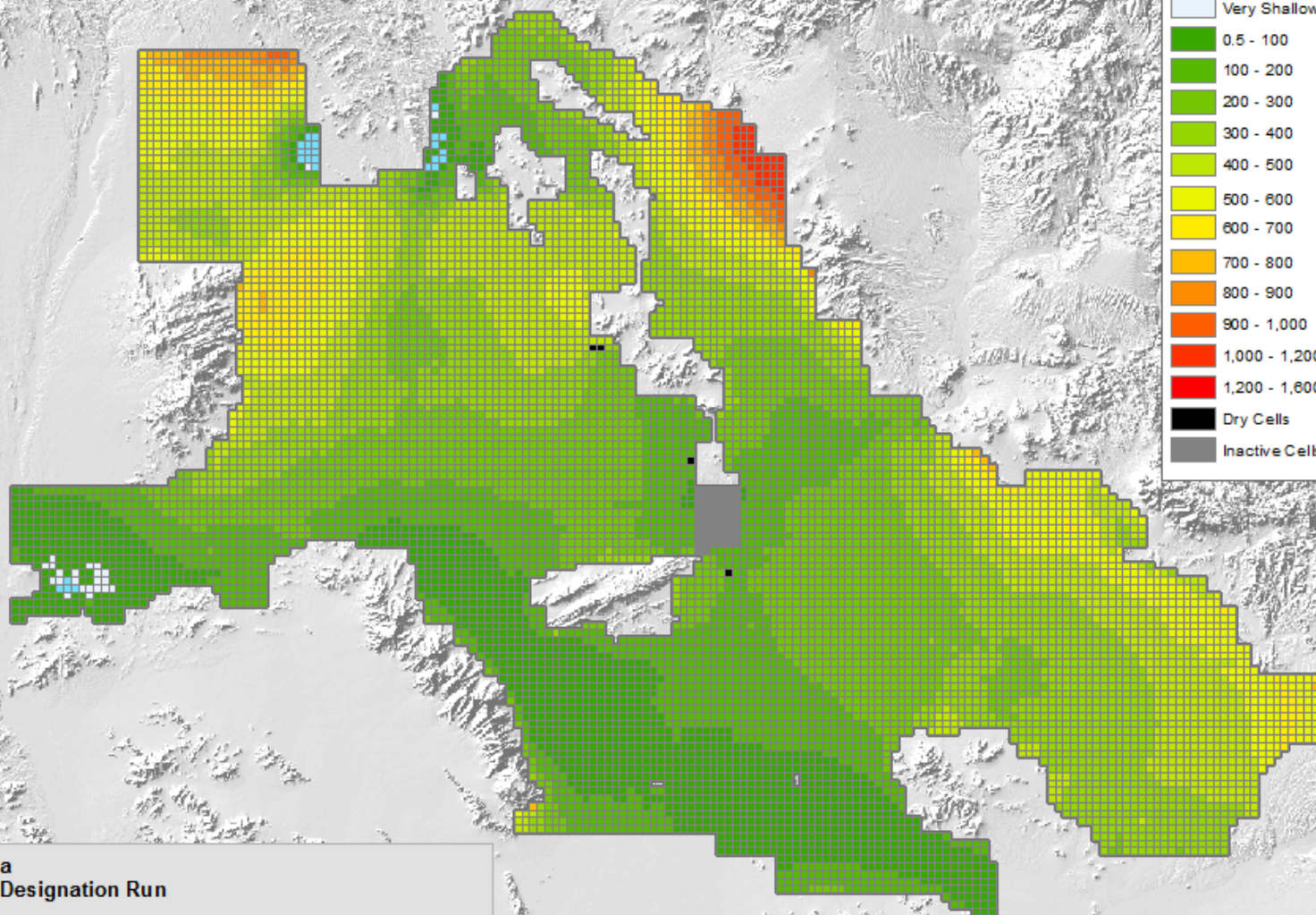
All AWS pumping in dry cell or below 1,000 ft bls moved

Pumping Not Simulated: Total= 4,287,989 af (2008-2108)

2030 Scenario 4 - Recovery of LTSC near USFs - DTW Layer 3

January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108



Scenario 4 - Run 3a

Description: Final Designation Run

Pumping: Moved to Layer 3 for years 2008 - 2108

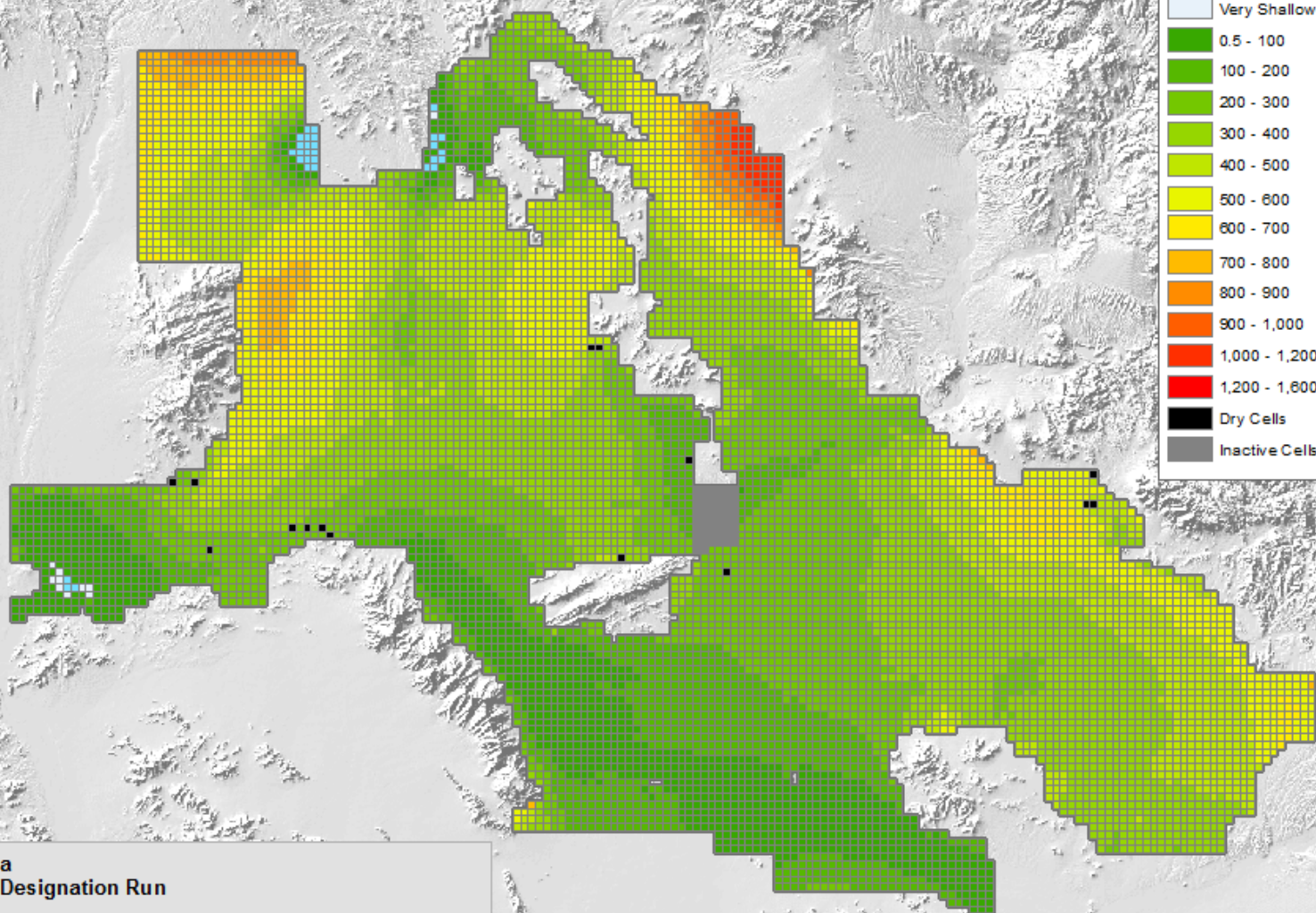
All AWS pumping in dry cell or below 1,000 ft bls moved

Pumping Not Simulated: Total= 4,287,989 af (2008-2108)

2050 Scenario 4 - Recovery of LTSC near USFs - DTW Layer 3

January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108



Scenario 4 - Run 3a

Description: Final Designation Run

Pumping: Moved to Layer 3 for years 2008 - 2108

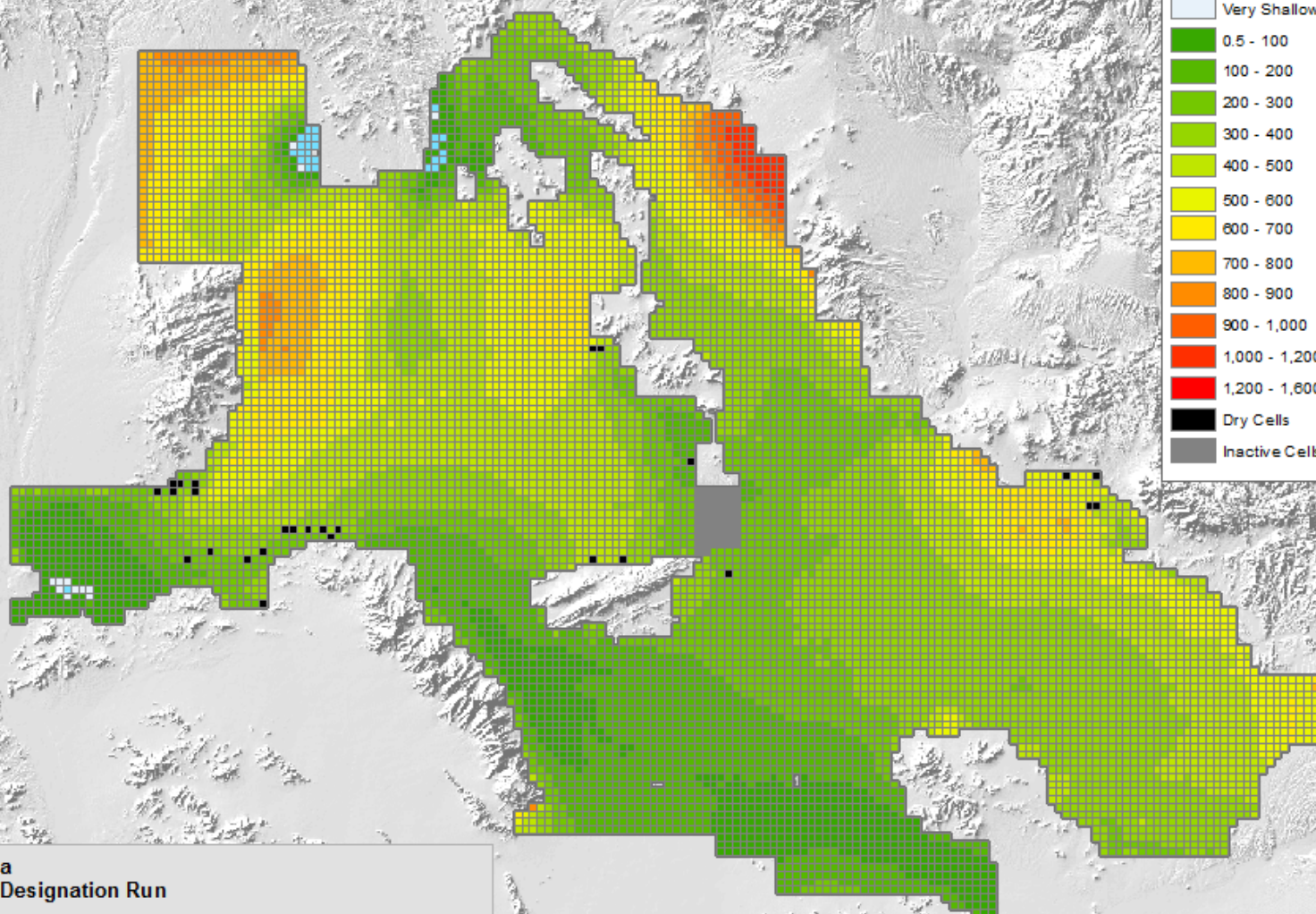
All AWS pumping in dry cell or below 1,000 ft bls moved

Pumping Not Simulated: Total=4,287,989 af (2008-2108)

2070 Scenario 4 - Recovery of LTSC near USFs - DTW Layer 3

January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108



Scenario 4 - Run 3a

Description: Final Designation Run

Pumping: Moved to Layer 3 for years 2008 - 2108

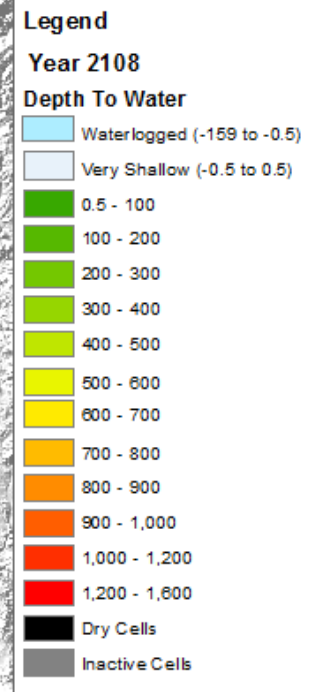
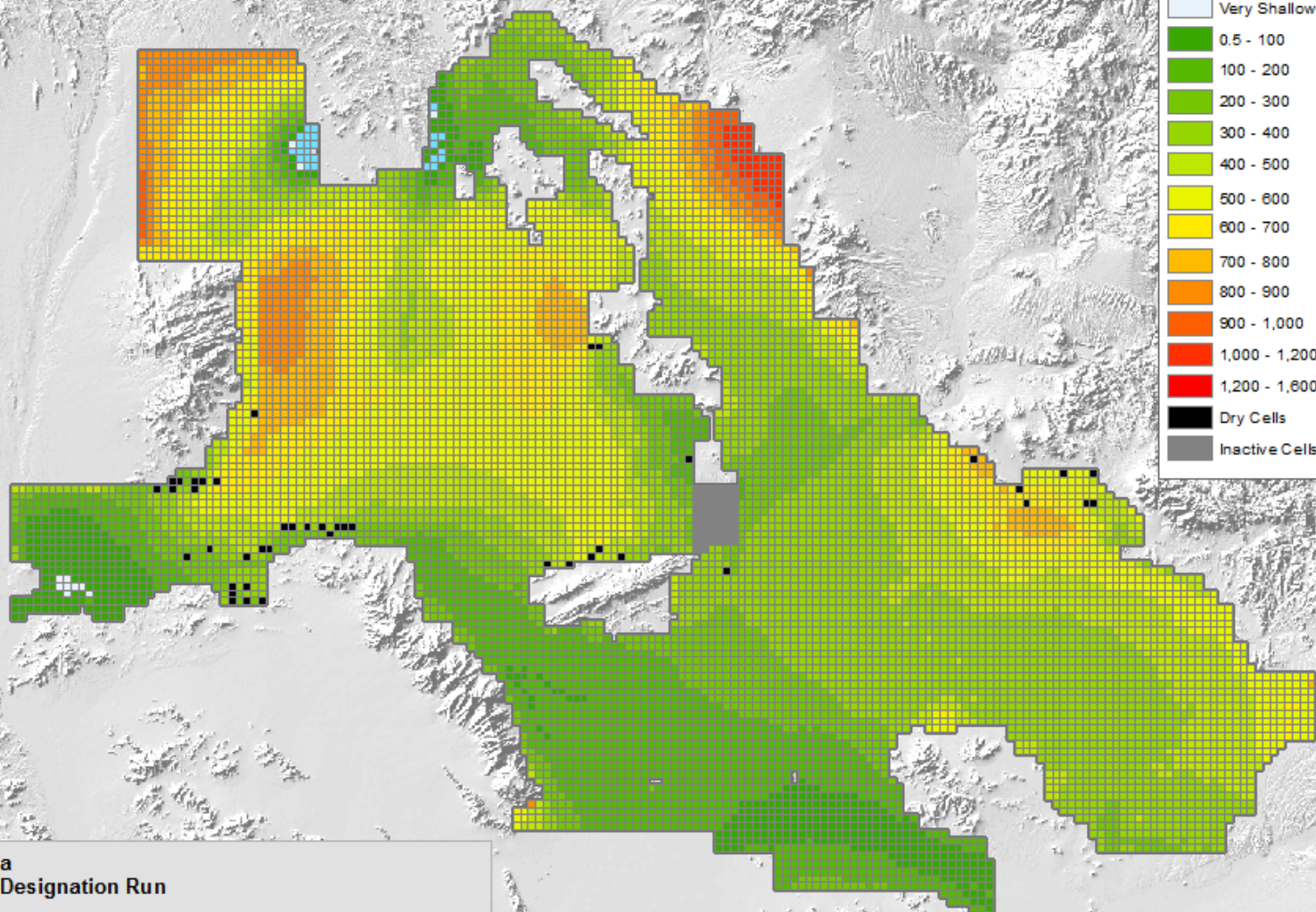
All AWS pumping in dry cell or below 1,000 ft bls moved

Pumping Not Simulated: Total= 4,287,989 af (2008-2108)

2090 Scenario 4 - Recovery of LTSC near USFs - DTW Layer 3

January 2014

Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108



Scenario 4 - Run 3a

Description: Final Designation Run

Pumping: Moved to Layer 3 for years 2008 - 2108

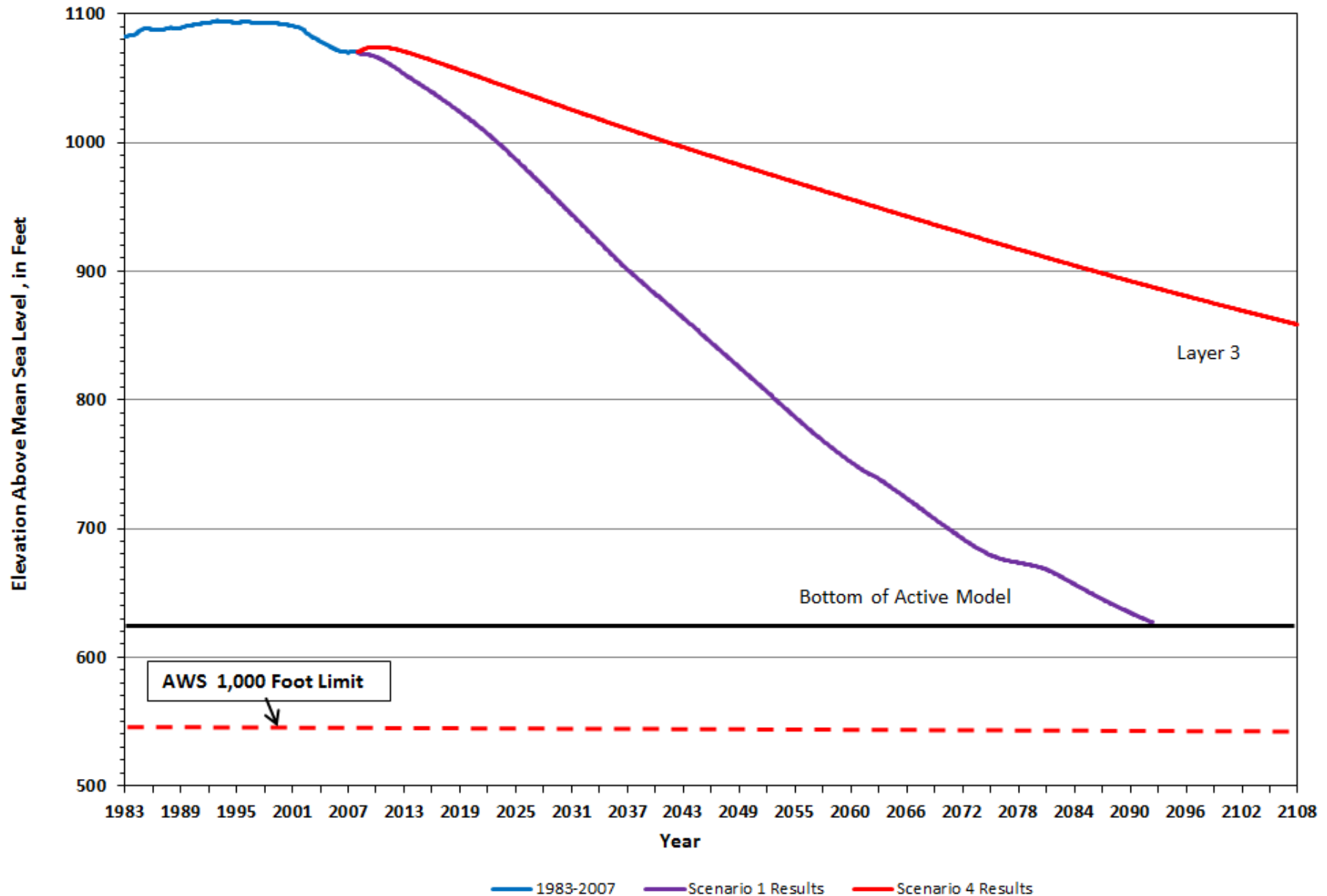
All AWS pumping in dry cell or below 1,000 ft bls moved

Pumping Not Simulated: Total=4,287,989 af (2008-2108)

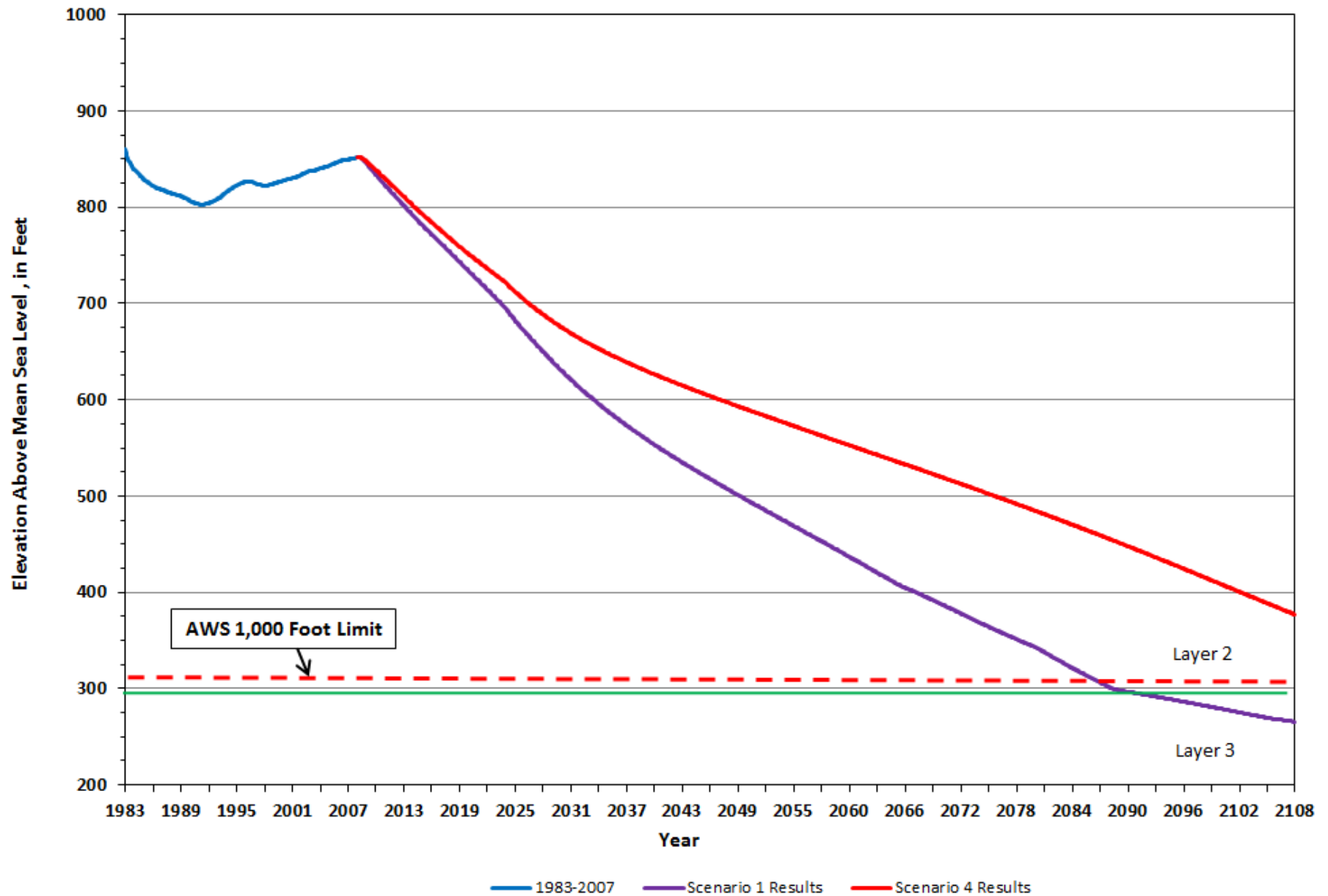
2108 Scenario 4 - Recovery of LTSC near USFs - DTW Layer 3

January 2014

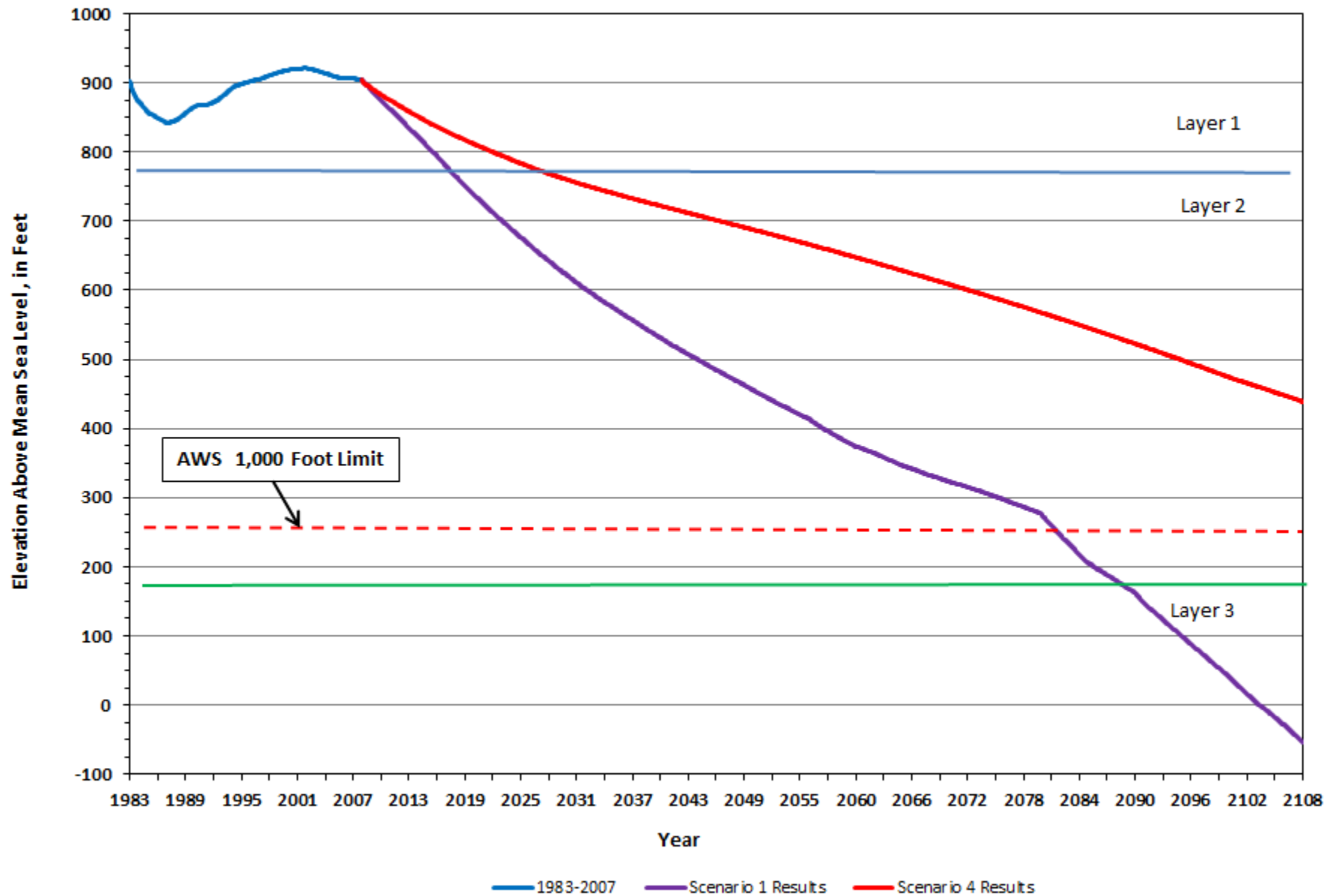
A-01-07 36DAA



B-03-02 21ABA



A-03-02 22BAA

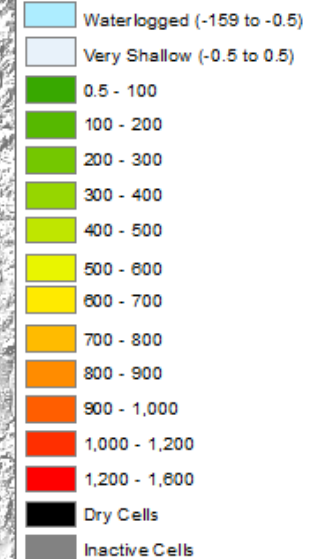


Phoenix AMA Re-Designation 100 years Projection: 2008 - 2108

Legend

Year 2108

Depth To Water



Scenario 1 - Run 6

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For 2108 = 70,808 af/yr

2108 Scenario 1 - Designation Pumping as Provided - DTW Layer 3

January 2014

Current Cuts to Aquifer

- Annual Storage/Recovery 0% cut
- Effluent LTSC, Constructed Facility or GSF, 0% cut
- Effluent LTSC, Managed Facility, 50% cut
- Non-effluent LTSC, all facility types, 5% cut
- Replenishment – no cut for GRD replenishment or replenishment reserve

ADWR Enhanced Aquifer Management Proposed Cuts to Aquifer

- Recovery within 1 mile of USF or within GSF, 0% cut
- Recovery outside 1 mile of USF or outside GSF, but in same sub basin, 10% cut
- Recovery in separate sub basin, 20% cut
- All sources treated the same
- LTSC and Annual Storage And Recovery treated same

AMWUA Proposal Cuts to Aquifer

- Additional cuts for water recovered in separate sub basin
- Additional cuts for water stored outside SEA and recovered inside SEA
- Additional credit for water stored inside SEA and recovered outside SEA
- CAGRD Replenishment – more water required to be replenished if in separate sub basin and/or depending on location with respect to SEA; less water required if in same sub basin, pumping outside SEA, replenishment inside.

Phoenix AMA

<i>Recharge/Recovery</i>	Storage & Recovery Outside SEA*		Water Stored at a CUSF Within a SEA**	Water Stored Outside a SEA and Recovered Within a SEA
Location	Effluent	Other Water Types	All Water Types	All Water Types
Recovery in the same sub-basin	<ul style="list-style-type: none">• 100% for storer if CUSF or GSF• 50% for storer if MUSF	<ul style="list-style-type: none">• 95% of LTSC if CUSF or GSF• 100% of AS&R if CUSF, MUSF or GSF	<ul style="list-style-type: none">• 115% of LTSC or AS&R if recovered outside SEA• 100% of AS&R if recovered within SEA• 95% of LTSC if recovered within SEA	<ul style="list-style-type: none">• 80% of LTSC or AS&R
Recovery not in the same sub-basin	<ul style="list-style-type: none">• 80% if CUSF or GSF• 50% for storer if MUSF	<ul style="list-style-type: none">• 80% of LTSC if CUSF or GSF• 80% of AS&R if CUSF, MUSF or GSF	<ul style="list-style-type: none">• 80% of LTSC or AS&R	<ul style="list-style-type: none">• 80% of LTSC or AS&R
<i>Replenishment</i>	Replenishment at CUSF or GSF Outside SEA*	Replenishment at CUSF Within a SEA**	Acronyms: SEA- Special Enhancement Area CUSF- Constructed Underground Storage Facility MUSF- Managed Underground Storage Facility GSF- Groundwater Savings Facility LTSC- Long Term Storage Credit AS&R- Annual Storage and Recovery <i>Bold, red text signifies no change from existing statutes/rules</i>	
Location	All Water Types	All Water Types		
Excess Groundwater Pumped In the Same Sub-basin of Replenishment	<ul style="list-style-type: none">• 100% if Pumping was not in SEA• 120% if Pumping was in SEA	<ul style="list-style-type: none">• 85% if Pumping was not in SEA• 100% if Pumping was in SEA		
Excess Groundwater Pumped Outside the Sub-basin of Replenishment	<ul style="list-style-type: none">• 120% for all Pumping	<ul style="list-style-type: none">• 120% for all Pumping		

NOTES: CAGR's use of long-term storage credits in the replenishment reserve account to meet replenishment obligations will be treated as if CAGR had replenished the water.

Long-term storage credits accrued prior to the effective date of these concepts are exempt.

* For purposes of this concept, because the Agua Fria Underground Storage Facility stores water in both the Lake Pleasant and West Salt River Valley sub-basins, these sub-basins will be deemed to be one sub-basin for recovery of water stored at the Agua Fria Underground Storage Facility.

SEA = Special Enhancement Area

- Hydrogeological area as described on land surface, where ADWR Director determines that underground storage or replenishment of water should be encouraged.
- Criteria may include declining groundwater levels, limited groundwater supplies, water quality concerns
- An applicant may petition for an area to be designated a SEA
- SEAs to be reviewed at least every 10 years. Minimum 2 years advance notice for undesignation of a SEA

Issues/Questions

- Criteria for defining areas of concern; frequency of re-evaluation
- Benefits to storers – credits, other benefits?
- What might proposal look like if only SEAs (incentives) but no changes to cuts to aquifer (disincentives)
- Other issues / discussion

Questions?

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